CLAIMS

We claim:

1. A microscope slide composition comprising:

a) a substrate with a surface comprising discrete sites, said sites separated by a distance of less than 50 μm, wherein said substrate is formatted to the dimensions of a microscope slide; and

b) a population of microspheres comprising at least a first and a second subpopulation, wherein said first subpopulation comprises a first bioactve agent and said second subpopulation comprises a second bioactive agent wherein said microspheres are randomly distributed on said surface.

2. A composition according to claim 1, wherein said sites are separated by a distance of less than 25 μm.

3. A composition according to claim 1, wherein said sites are separated by a distance of less than 15 μm.

4. A composition according to claim 1, 2 or 3, wherein said sites are separated by a distance of at least about 5 μm.

5. A microscope slide composition comprising:

a) a substrate with a surface comprising discrete sites, wherein said substrate is formatted to the dimensions of a microscope slide;

b) a population of microspheres, comprising at least a first and a second subpopulation, wherein said first subpopulation comprises a bioactive agent and said second subpopulation does not comprise a bioactive agent, wherein said microspheres are randomly distributed on said surface.

6. The composition according to claim 1 or 5, wherein the distance between centers of a first and second microsphere of said first subpopulation is at least 5 μm.

7. The composition according to claim 6, wherein the distance between said first and second microsphere of said first subpopulation is less than about 100 μm.

8. A composition according to claim 1 or 5, wherein said substrate further comprises first and second assay locations, wherein said first and second subpopulations are distributed in said first and second assay locations.

9. A composition according to claim 8, wherein the distance between a first and second microsphere of said first subpopulation is less than about 100 μm.

10. A composition according to claim 9, wherein the distance between a first and second member of said first subpopulation is less than about 50 μm.

11. A composition according to claim 9, wherein the distance between a first and second member of said first subpopulation is less than about 15 μm.

12. A composition according to claim 9, 10 or 11, wherein the distance between said first and second member of said first subpopulation is at least about 5 μm.

13. A composition according to claim 5, wherein said second subpopulation comprises a detectable signal.

14. A composition according to claim 5, wherein said second subpopulation does not comprise a detectable signal.

15. An apparatus comprising:

a) a detection instrument; and

b) the composition according to claim 1 or claim 5, wherein said composition is in said instrument.

16. A method for making a microscope slide composition comprising:

a) providing a substrate with a surface comprising wells, wherein said substrate is formatted to the dimensions of a microscope slide;

b) randomly distributing microspheres on said substrate such that individual wells comprise microspheres, wherein said microspheres comprise at least a first and a second subpopulation, wherein said first subpopulation comprises a bioactive agent and said second subpopulation does not comprise a bioactive agent.

17. The method according to claim 16, wherein said first subpopulation further comprises first and second sub-sub-populations, each comprising a first and second bioactive agent, respectively.

18. A method for making a microscope slide composition comprising:

a) providing a substrate with a surface comprising discrete sites, said sites separated by a distance of less than 50 μm, wherein said substrate is formatted to the dimensions of a microscope slide; and

b) randomly distributing population of microspheres comprising at least a first and a second subpopulation, wherein said first subpopulation comprises a first bioactve agent and said second subpopulation comprises a second bioactive agent.

19. The method according to claim 18 wherein said wells are separated by a distance of less than 25 μm.

20. The method according to claim 18, wherein said wells are separated by a distance of less than 15 μm.

21. The method according to claim 18, wherein the ratio of said first and said second subpopulation is at least 1: 36.

22. The method according to claim 18, wherein the ratio of said first and said second subpopulation is at least 1: 100.

23. The method according to claim 18, wherein the distance between the centers a first and second microsphere of said first subpopulation is at least 5 μm.

24. The method according to claim 18, wherein the distance between the centers of a first and second microsphere of said first subpopulation is at least 15 μm.

25. The method according to claim 18, wherein the distance between a first and second microsphere of said first subpopulation is at least 50 μm.

26. A method of making microscope slide arrays comprising:

a) providing a substrate comprising at least first and second holes, wherein the diameter of said first and second holes is of a diameter equal to the diameter of a first and second fiber optic bundle, respectively;

b) inserting said first and second fiber optic bundles into said first and second holes, respectively; and

c) cutting said substrate such that the cross section of said first and second fiber bundles is framed by said substrate.